

CLAIMS

What is claimed is:

- 5 1. A delivery apparatus comprising:
 a catheter for passage through the intestines; and
 a spherically shaped element coupled to the distal end of the catheter.
2. The delivery apparatus of claim 1 wherein the spherically shaped element is
10 remotely releasable.
3. A delivery system for placing a gastrointestinal implant device in a body
 comprising:
15 an outer sheath in the proximal portion of the delivery system for storing
 a proximal portion of the gastrointestinal implant device, the proximal portion of
 the gastrointestinal implant device including an anchoring device for anchoring
 the device in the stomach;
 an inner sheath within the outer sheath, the inner sheath extending
20 beyond the outer sheath toward the distal end of the delivery system, a first
 lumen within the inner sheath for passing the outer sheath over a guidewire and
 a second lumen within the inner sheath for moving a moveable element to
 secure the distal end of a sleeve coupled to the stent to the inner sheath;
 a release mechanism to release the anchoring device from the outer
 sheath;
25 a sleeve release mechanism coupled to the moveable element for
 releasing the distal end of the sleeve; and
 a spherical shaped element at the distal end of the delivery system, the
 spherical shaped element held by the moveable element.

4. The delivery system of claim 3, wherein the moveable element is a sleeve retention wire, which exits the second lumen and pierces the distal end of the sleeve.
- 5 5. The delivery system of claim 4, wherein the release mechanism pulls the outer sheath toward the proximal end of the delivery system to remove the outer sheath from the anchoring device.
- 10 6. The delivery system of claim 3, wherein the sleeve release mechanism pulls the moveable element toward the proximal end of the delivery system to release the distal end of the sleeve after the anchoring device has been released.
- 15 7. The delivery system of claim 3, wherein a distal portion of the sleeve is stored in a pill for delivery and the distal portion of the sleeve is released from the pill by peristalsis.
8. The delivery system of claim 3, wherein a distal portion of the sleeve is stored in a dissolvable pill for delivery.
- 20 9. The delivery system of claim 3, wherein the spherical shaped element is attached to an element retention wire which is held by the moveable element.
10. The delivery system of claim 3, wherein the moveable element is looped through the spherical shaped element.
- 25 11. The delivery system of claim 3, wherein the distal end of the moveable element is coiled and stored within the spherical shaped element.

12. The delivery system of claim 3, wherein the moveable element is held in an S-shaped track within the spherical shaped element.
13. The delivery system of claim 3, wherein the spherical shaped element at the
5 distal end of the delivery system is an expandable balloon.
14. The delivery system of claim 3, wherein the inner sheath includes a third lumen through which a fluid is passed to release the sleeve from the distal end of the delivery device.
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15. The delivery system of claim 3 wherein the element is remotely releasable.
16. The delivery system of claim 3, wherein the sleeve release mechanism pulls the moveable element toward the proximal end of the delivery system to release the
15 spherical shaped element after the anchoring device has been released.
17. A gastrointestinal implant device comprising:
a flexible sleeve, open at both ends, and adapted to extend into the duodenum to limit absorption of nutrients in the duodenum; and
20 a collapsible anchor coupled to a proximal end of the sleeve, the anchor comprising two spaced apart rings of differing diameters to anchor the proximal portion of the sleeve in the stomach.
18. The gastrointestinal implant device of claim 17 wherein the rings are made from
25 Nitinol.
19. The gastrointestinal implant device of claim 17, wherein each of the rings includes at least two stabilizing ears.

20. The gastrointestinal implant device of claim 17, wherein the ring is formed by loosely intertwined wires.
- 5 21. The gastrointestinal implant device of claim 17, wherein the rings are linked with a connecting bar.
22. The gastrointestinal implant device of claim 21, wherein the connecting bar includes extensions extending from the exterior surface of the bar for anchoring the proximal portion of the sleeve in the stomach.
- 10 23. The gastrointestinal implant device of claim 22, wherein extensions extending from the exterior surface of a proximal ring and extensions extending from the exterior surface of a distal ring are angled towards each other.
- 15 24. The gastrointestinal implant device of claim 17, wherein the anchor is covered by a proximal portion of the sleeve.
25. The gastrointestinal implant device of claim 17, wherein the interior surface of the ring is covered by the sleeve and the exterior surface of the ring is coated with polyurethane.
- 20 26. The gastrointestinal implant device of claim 17 in combination with a catheter to insert the flexible sleeve.
- 25 27. The gastrointestinal implant device of claim 26, wherein the rings are folded in a u-shape stored in a delivery tube to insert the flexible sleeve.
28. The gastrointestinal implant device of claim 17, wherein the sleeve is impregnated with an anti-hunger hormone.

29. The gastrointestinal implant device of claim 28, wherein the anti-hunger hormone is peptide-YY.
- 5 30. The gastrointestinal implant device of claim 17, wherein the sleeve is impregnated with a drug that reduces inflammation.
31. The gastrointestinal implant device of claim 17, wherein the distance between the rings is selected to hold the pylorus open.
- 10 32. The gastrointestinal implant device of claim 17, wherein the sleeve is formed of cast polytetraflouroethylene.
- 15 33. The gastrointestinal implant device of claim 17, wherein the sleeve is formed of cast flouronated ethylene propylene with polytetraflouroethylene coating.
34. The gastrointestinal implant device of claim 17, wherein the sleeve is formed of extruded flouronated ethylene propylene.
- 20 35. The gastrointestinal implant device of claim 17, wherein the sleeve is formed of extruded perfluoroalkoxy.
- 25 36. A method of treating intestinal bowel disease comprising the steps of:
anchoring a flexible sleeve within the stomach, the sleeve open at both ends and impregnated with a drug that reduces inflammation; and
extending the flexible sleeve into the jejunum.
37. A method of treating obesity comprising the steps of:

anchoring a flexible sleeve within the stomach, the sleeve open at both ends and enhanced with anti-hunger hormones; and
extending the flexible sleeve into the duodenum.

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